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UNEXPECTED RESULT OF THE REACTION OF 6(7)-ACETYL- AND 6(7)-BENZOYL-1H-NAPHTHO-[1,8-*de*][1,2,3]TRIAZINES WITH VINYL BUTYL ETHER

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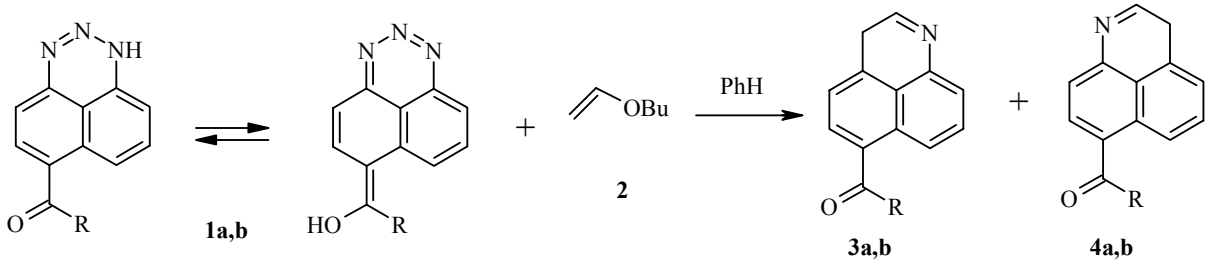
Flowerday and Perkins [1] have shown that *peri* annelation of a carbocyclic ring may be accomplished by means of the stepwise condensation of two carbonyl compounds with subsequent cyclization. We proposed that the reaction of 6(7)-acetyl- and 6(7)-benzoyl-1H-naphtho[1,8-*de*][1,2,3]triazines with vinyl butyl ether should lead to ring closure and formation of the corresponding 1,2,3-triazapyrenes. Unexpectedly, we found that heating 1 mmol **1** compound with 3 mmol vinyl butyl ether **2** in benzene at reflux gave a mixture of the corresponding acyl derivatives of 3H-1-azaphenalene **3** and **4** in quantitative yield. We were unable to separate the mixture of isomers into pure compounds due to their similar chromatographic mobility.



1–**3** **a** R = Me, **b** R = Ph

This reaction probably proceeds through a set of steps involving cycloaddition and cycloelimination. The reaction mixture of products occurs since starting triazine **1** may exist as either of two isomers due to prototropic tautomerism in solution.

Only photochemical variants of such conversions have been reported previously [2].

The ^{1}H NMR spectra were obtained on a Bruker WP-200 spectrometer at 200 MHz in $CDCl_3$ with TMS as the internal standard.

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6-Acetyl-3H-1-azaphenalene (3a, $C_{14}H_{11}NO$). ^{1}H NMR spectrum, δ, ppm (*J*, Hz): 1.71 (2H, d, *J* = 6.1, H-3); 2.61 (3H, s, CH_3); 5.81 (1H, d, *J* = 6.1, H-2); 6.81 (1H, d, *J* = 8.2, H-4); 7.39 (1H, d, *J* = 7.6, H-9); 7.61 (1H, dd, $J_{8,9}$ = 7.6, $J_{7,8}$ = 8.2, H-8); 7.92 (1H, d, *J* = 8.2, H-5); 8.94 (1H, d, *J* = 8.2, H-7).

7-Acetyl-3H-1-azaphenalene (4a, $C_{14}H_{11}NO$). ^{1}H NMR spectrum, δ, ppm (*J*, Hz): 1.71 (2H, d, *J* = 6.1, H-3); 2,64 (3H, s, CH_3); 5.76 (1H, d, *J* = 6.1, H-2); 7.02 (1H, d , *J* = 7.6, H-4); 7.13 (1H, d, *J* = 8.1, H-9); 7.42 (1H, dd, $J_{4,5}$ = 7.6, $J_{5,6}$ = 8.2, H-5); 7.97 (1H, d, *J* = 8.1, H-8); 8.51 (1H, d, *J* = 8.2, H-6). Found, %: C 80.53; H 5.24; N 6.58. $C_{14}H_{11}NO$. Calculated, %: C 80.36; H 5.30; N 6.69.

6-Benzoyl-3H-1-azaphenalene (3b, $C_{19}H_{13}NO$). ^{1}H NMR spectrum, δ, ppm (*J*, Hz): 1.77 (2H, d, *J* = 6.4, H-3); 5.78 (1H, d, *J* = 6.1, H-2); 6.76 (1H, d, *J* = 8.2, H-4); 7.41 (1H, d, *J* = 7.6, H-9); 7.51-7.57 (5H, m, H-5, H-8, 3,4,5-C_6H_5); 8.32 (1H, d, *J* = 8.2, H-7).

7-Benzoyl-3H-1-azaphenalene (4b, $C_{19}H_{13}NO$). ^{1}H NMR spectrum, δ, ppm (*J*, Hz): 1.77 (2H, d, *J* = 6.4, H-3); 5.79 (1H, d, *J* = 6.4, H-2); 6.96 (1H, d, *J* = 7.6, H-4); 7.13 (1H, d, *J* = 8.1, H-9); 7.31 (1H, dd, $J_{4,5}$ = 7.63, $J_{5,6}$ = 8.2, H-5); 7.51-7.57 (4H, m, H-8, 3,4,5-C_6H_5); 7.8 (2H, d, *J* = 7.1, 2,6-C_6H_5); 7.97 (1H, d, *J* = 8.2, H-6). Found, %: C 84.29; H 4.74; N 5.07. $C_{19}H_{13}NO$. Calculated, %: C 84.11; H 4.83; N 5.16.

REFERENCES

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2. I. K. Lewis and R. D. Topsom, *Austr. J. Chem.*, 923 (1965).